

REMARKS/ARGUMENTS

Claims 1-20 are pending in this application. Claims 1-20 stand rejected. Claims 1, 8, and 15 have been amended. Claims 1-2, 6, 8-9, 13-16 and 20 stand rejected under 35 USC §103 (a) as being unpatentable over U.S. Patent No. 5,982,221 ("Tuthill") in view of U.S. Patent No. 6,097,239 ("Miranda"). Claims 3-4, 10-11, 17-18 stand rejected under 35 USC §103(a) as being unpatentable over Tuthill and Miranda, and further in view of U.S. Patent No. 6,008,685 ("Kunst"). Claims 5, 12 and 19 stand rejected under 35 USC § 103 (a) as being unpatentable over Tuthill and Miranda, and further in view of U.S. Patent No. 6,140,860 ("Sandhu"). In view of the foregoing amendments and following remarks, reconsideration and allowance of all pending claims are respectfully requested.

**Claim Objection under 35 USC. §132(a)**

The Office Action objected to "new matter" being introduced into the disclosure and requires the applicant to cancel the "added" material that pertains to "exactly one of the first and second terminals." Applicants object to this characterization of the claimed amendments. For example, Figure 3 shows a temperature measurement circuit that is configured to perform a voltage measurement using *exactly one of the first and second terminals*. Figure 3 shows the dual-diode system being used in a single-ended mode, which requires that only one terminal be used in the measurement. Nevertheless, applicants have amended the claims in accordance with the required action.

**Claim Rejections under 35 USC §103(a)**

As noted in the Office Action of July 5, 2006, Tuthill does not explicitly teach to collocate the measuring circuit (differential ADC) onto a second substrate. As noted in the Office Action of September 21, 2006, Tuthill does not teach or suggest using exactly one of the first and second terminals for temperature measurements. Instead, Tuthill teaches using a switched differential circuit to produce a compounded delta VBE. Also, Tuthill is silent on using a common substrate for the first and second junction diodes and a second substrate for a temperature measurement circuit.

Tuthill teaches away from using a common substrate for the first and second junction diodes and a second substrate for a temperature measurement circuit because the circuit is a noise defeating circuit for producing accurate VBEs with high signal-to-noise ratios (see 1:32-35) and correcting amplifier offset errors (see 1:46-49). Placing the amplifier on a separate substrate would decrease the SNR and substantially reduce the auto-zero capability (for reducing offset errors) of the amplifier (see 5:16-20). Thus modifying the primary reference (Tuthill) by separating the PN junctions from the measurement device, would render the cited art unsuitable for its intended purpose because of increased noise and error in calibrating the amplifier.

Miranda fails to make up for these deficiencies because Miranda fails to teach or suggest a dual diode system comprising a first junction diode and a second junction diode wherein the first junction diode and the second junction diode are collocated on a first substrate. Miranda instead teaches PN junctions on separate substrates (see Figure 1). Thus the cited art, either

singly or in motivated combination fails to teach a collocated dual diode system and a temperature measurement circuit on a second substrate.

The Office Action asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device so as to use only (exactly) one diode (first terminal) during measurement mode, while the second terminal is used as a reference in order to provide more accurate results by comparing data with the reference. Applicants traverse the assertion because the motivation is too general (for example, the reasoning would preclude patentability of **any** invention that provides more accurate results), and is not directed towards claim limitations (for example, temperature measurements where the measuring device is on one substrate, and the sensors on a common substrate that is separate from the measurement device).

Claims 3-4, 10-11 and 17-18 stand rejected under 35 USC §103(a) as being unpatentable over Tuthill and Miranda, and further in view of U.S. Patent No. 6,008,685 ("Kunst"). Applicants believe the claims are allowable for at least the reasons stated above.

Claims 5, 12 and 19 stand rejected under 35 USC § 103 (a) as being unpatentable over Tuthill and Miranda, and further in view of U.S. Patent No. 6,140,860 ("Sandhu"). Applicants believe the claims are allowable for at least the reasons stated above.

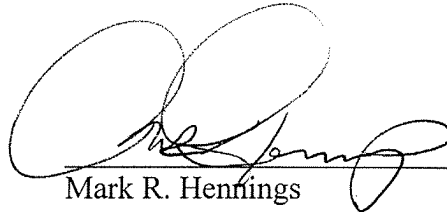
In view of the foregoing amendments and remarks, all pending claims are believed to be allowable and the application is in condition for allowance. Therefore, a Notice of Allowance is respectfully requested. Should the Examiner have any further issues regarding this application,

App. No. 10/820,535  
Amendment Dated January 22, 2007  
Reply to Final Office Action of September 21, 2006

the Examiner is requested to contact the undersigned attorney for the applicant at the telephone number provided below.

Respectfully submitted,

MERCHANT & GOULD P.C.

A handwritten signature in black ink, appearing to read 'Mark R. Hennings', is written over a horizontal line.

Mark R. Hennings  
Registration No. 48,982  
Direct Dial: 206.342.6289

MERCHANT & GOULD P.C.  
P. O. Box 2903  
Minneapolis, Minnesota 55402-0903  
206.342.6200

